REMARKS

Reconsideration of the application is requested.

Claims 1-34 are now in the application. Claims 1-17 and 34 are subject to examination and claims 18-33 have been withdrawn from examination. Claim 1 has been amended. Claim 34 has been added.

Under the heading "Claim Rejections - 35 USC § 102" on pages 2 and 3 of the above-identified Office Action, claims 1 and 3-5 have been rejected as being fully anticipated by Kawaguchi et al., article titled "The Formation of Crystalline Defects ….", 1998, pp 24-26, (hereinafter Kawaguchi) under 35 U.S.C. § 102.

The rejection has been noted and claim 1 of the instant application has been amended in an effort to even more clearly define the invention of the instant application. Amended claim 1 contains the additional feature that an energy barrier is built up in the regions having the lower thickness than the remaining regions of the compound semiconductor body. Support for the changes is found on page 7, lines 14-18 of the specification of the instant application.

Kawaguchi describes optical devices that are made of a double heterostructure with an $In_xGa_{1-x}N$ active layer embedded between GaN or AlGaN cladding layers (see page 24). According to

Kawaguchi, hexagonal pits appear on a surface of the $In_xGa_{1-x}N$ layer grown on a GaN layer because of a lattice mismatch. As edge dislocations penetrate to the GaN layer and propagate into the $In_xGa_{1-x}N$ layer, pits are formed on the $In_xGa_{1-x}N$ surface (see page 28) causing a region of high defect density.

Furthermore, Kawaguchi discloses that an indium mole fraction reaches the thermal equilibrium value in the $In_xGa_{1-x}N$ layer with a high defect density (see page 27). Thus, there should be no diffusion potential difference in the $In_xGa_{1-x}N$ layer with the high defect density causing any energy barrier, and thus Kawaguchi does not disclose any energy barrier in the $In_xGa_{1-x}N$ layer with the high defect density suppressing diffusion of charge carriers toward dislocations.

In contrast and according to claim 1 of the instant application, diffusion of charge carriers toward the dislocations is suppressed by the built-up energy barrier (see page 5, lines 22-23, of the specification of the instant application).

Consequently, Kawaguchi does not disclose that an energy barrier is built up in the vicinity of the dislocations, and amended claim 1 of the instant application is believed to be novel with respect to Kawaguchi.

It is an object of the instant application to provide a method for fabricating a light-emitting device which has an improved light yield.

The reduction in the thickness of the light-emitting layer in the vicinity of dislocations causes shielding energy barriers, which suppress diffusion of charge carriers toward the dislocations and therefore prevent possible non-radiating recombination of electron-hole pairs at these dislocations (see page 5, last paragraph of the specification of the instant application). As a consequence, the light yield of the light-emitting device is improved.

In contrast to the instant application, Kawaguchi does not disclose any teaching concerning a method for fabricating a light-emitting device that has an improved light yield. Kawaguchi studies crystal growth mechanisms of $In_xGa_{1-x}N$ layers in relation to a composition pulling effect (see page 25). However, Kawaguchi does not mention that the layers studied or grown are appropriate in any way to form an active laver of an LED or LD.

Furthermore, Kawaguchi describes that the indium mole fraction increases with increasing defect density. But Kawaguchi does not teach any relation between an increased indium mole fraction or increased defect density and an improved light

yield.

Thus, the instant application is not obvious in the light of Kawaguchi.

New claim 34 has been added. New claim 34 is based on original claim 1 with some slight rewording. Please find enclosed a credit card authorization of $50.00 for the additional claim in excess of 20.

In item 5 pages 3-4 of the above-identified Office Action, claims 2 and 6-12 have been rejected as being obvious over Kawaguchi in view of Applicant's admitted prior art (pages 1-3 of the specification of the instant application) under 35 U.S.C. § 103.

Claims 2 and 6-12 depend from amended claim 1. Amended claim 1 is believed to be allowable and therefore claims 2 and 6-12 are also believed to be allowable.

In item 6 pages 4-5 of the above-identified Office Action, claims 13-17 have been rejected as being obvious over Kawaguchi in view of Mukai, article entitled "InGaN-Based Blue Light Emitting Diodes …", L839-841 (hereinafter Mukai) under 35 U.S.C. § 103.

As Mukai does not teach that the dislocations act as non-radiative recombination centers in the InGaN active layer (see page 841), a person of average skill in the art would not be motivated to prevent charge carrier diffusion to dislocations and thus improve light yield. Consequently, a person of average skill in the art would see no use in energy barriers suppressing diffusion of charge carriers. The combination cited by the Examiner is not believed to disclose the features of amended claim 1, therefore claims 13-17 are believed to be allowable because they depend from claim 1.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 or 34. Claims 1 and 34 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, reconsideration and allowance of claims 1-34 are solicited.

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

Ralph E. Locher
Registration No. 41,947

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Lerner and Greenberg, P.A.
P.O. Box 2480
Hollywood, Florida 33022-2480
Tel.: (954) 925-1100
Fax: (954) 925-1101